

Introduction

A Geographic Information System (GIS) is a great tool! It allows maps, images and data to be linked in an interactive and dynamic environment. We will provide here a brief overview of the many ways that GIS can be utilized for assessment purposes.

In relation to the work of the Assessor's Office, first and foremost, GIS is an efficient way of maintaining your parcel maps. Secondly, it is a great tool that can assist in analysis and can facilitate efficiencies in your assessment process and greater uniformity and accuracy of your assessed values.

On your map, utilizing the parcel layer, you can visually represent (through colors, outlines and fill patterns) values, ratios and percentages, position on a scale and the presence or absence of attributes.

General Uses Include:

- Administration
- Planning
- Analysis
- Modeling
- Verification
- Presentations

Descriptions of Example Uses

Here are a few examples of ways that GIS can be utilized to enhance the Assessor's Office's functions; examples of items that can be mapped, illustrated and represented with GIS.

- 1. Ratios**- One of the most common uses is the illustration of ratios, often represented through a graduated color scale. There are numerous ratios that you may want to look at. Here are a few:
 - a. Last Year's Assessed Value to Sales Price
 - b. Preliminary Current Assessed Values to Sales Price
 - c. Final Assessed Values to Sales Prices
 - d. Appraisals to Sales
 - e. Valuation Model Results to Sales
- 2. Percent of Change of Assessed Values**
- 3. Paired Sales** – This could be the percent change or a dollar amount of change, either absolute or annual or monthly.
- 4. Sales Data**
 - a. Illustrate Location of Sales (can show market shifts)
 - b. Number/Volume of Sales
 - c. Sales Prices
 - d. Price per SF
- 5. Market Areas / Valuation Areas / Regions & Neighborhoods**
 - a. Looking at them visually, especially with aerial photography, topography lines, rivers and other overlays, can greatly assist in defining or refining them.
 - b. Mapping them with assessment to sales ratios can identify problem areas to address, market changes, or problems with your valuation model.

Utilizing GIS to Enhance Assessment Functions *(continued)*

6. *Property Characteristics- Land*

- a. Price per Acre
- b. Price per Front Foot
- c. Site/Lot Values
- d. Land Use (can illustrate mix)
- e. Slope Rating
- f. Utility (Usability) Rating
- g. For Agricultural Areas- soil types or productivity ratings
- h. For Commercial Properties- Traffic or Access rating

7. *Property Characteristics- Improvements*

- a. Year Built
- b. Effective Age
- c. Quality
- d. Size

8. *External Influences*

- a. Environmental
 - i. Proximity to Amenities
 - ii. Transportation Infrastructure
 - iii. Travel Times
- b. Governmental
 - i. Zoning
 - ii. Public Services
 - iii. Restriction & Regulation Boundaries
 - iv. Jurisdiction Boundaries
 - v. Growth Management Boundaries
- c. Social
 - i. Demographics
 - ii. Migration Patterns
- d. Economic
 - i. Employment
 - ii. Income Patterns

9. *Outliers*- In mapping outliers, especially in combination with other factors (as overlays) sometimes patterns emerge

10. *Inspection Areas*

- a. Looking at them visually, especially with aerial photography and other overlays, can greatly assist in defining or refining them.
- b. Some GIS systems, with georeferenced addresses, can actually be used to lay out routes or inspection sequences.

11. *Other Layers*- Here are some additional layers that can be used overlaid with the above

- a. Aerial Photography
- b. Topographic Lines
- c. Wetlands
- d. Flood Zones
- e. Major streets and Railroads
- f. Lakes and Rivers
- g. And many others

Utilizing GIS to Enhance Assessment Functions *(continued)*

Many of the previously listed examples have multiple uses. For instance the line that lists site or lot values is just one line, however, it represents many potential uses. Land values could be used for review prior to appraisers doing site inspections and to identify areas where land value needs to be looked at closer. If you have multiple people in your office setting land values then the mapping of those values could be used to compare for uniformity. You could illustrate land values across multiple neighborhoods or a whole city. Mapping of land values could also be used to verify the results of a mass update process.

The numerous attributes listed under the two Property Characteristics headings (land & improvements) can be mapped individually (such as mapping all view properties or mapping the quality of improvements) or they can be highlighted or identified as a part of another analysis. For example you might have ratios of assessed values to sales prices mapped with a graduated color scheme and then add an outline or pattern indicating view properties or indicating improvement quality.

Using the GIS as a tool for your valuation model calibration sometimes helps you to identify missed influences or influences that need to be recalibrated.

Another example would be mapping out land values or percentages of change after doing a mass update to make sure all of the parcels in an area received the correct treatment.

GIS can also be a tool for identifying certain parcels for study or mass updates in that you can highlight or select parcels visually and then have the software give you a list of the parcel numbers for the selection.

Summary

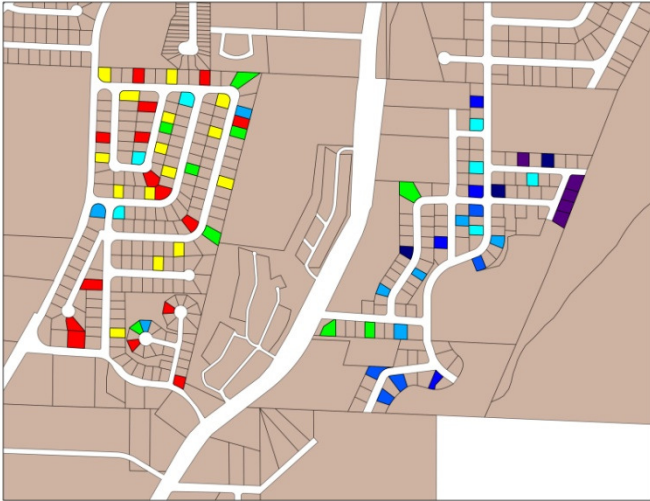
The above listed uses are just a partial list of the many ways that GIS can be utilized. The variations of maps, symbology, overlays and uses are quite extensive.

There are numerous providers of GIS software applications, both commercial and free open source. Like any technology or tool there is a cost to getting an electronic mapping system set up but once established it can contribute to efficiencies and can help improve the equity and uniformity of your assessments.

Following are several examples of images taken from GIS.

Utilizing GIS to Enhance Assessment Functions *(continued)*

Examples:



Ratios Mapped With a Graduated Color Scale



Check of Land Values and/or Mass Update Results



Checking Land Values in One Particular Neighborhood